

ADVANCED
PROJECTS

Upgrade to Windows Vista

You're keen to upgrade to Vista, but can your PC handle it? Jon Thompson explains how to prepare your system and guides you through all the necessary hardware and software checks

If you want to upgrade to Windows Vista, there are two questions that have to be answered: does your current computer have enough power to run it, and are your existing peripherals and software compatible? In order to answer these questions, you will need Microsoft's Upgrade Advisor, which you can download from <http://tinyurl.com/27pek>.

UPGRADE ADVISOR

First, download and install Upgrade Advisor to the computer you want to upgrade. Plug in and switch on all the hardware you want to use under Vista and then run the utility. Press the Start Scan button to probe your system. This will run a series of checks to see if your hardware (processor, graphics card, memory and so on) is up to the job, and that your software and peripherals have Vista support.

At the end of the process, you'll get a report that tells you if your computer is ready for Vista. The System Requirements section will tell you if your PC's specification meets Vista's minimum requirements, and if it doesn't what needs to be upgraded. Note down which components are OK and which need upgrading. Even if your PC says that it's ready for Vista, note down your current hardware. The Upgrade Advisor checks only for minimum requirements, which means you won't necessarily get the best performance.

The Upgrade Advisor also produces a compatibility list for your peripherals and software, and a suggested action. If the action is to download the Vista driver or update, you know there's a simple way to get your kit working. If the action tells you there's a compatibility issue and that you should contact your manufacturer or

visit the vendor's website, you may run into problems. This doesn't mean that Vista won't work, but you may have trouble. Note down any peripherals or software that have been flagged with potential problems, and we'll show you how to get them working shortly.

HARDWARE CENTRAL

The first thing to get right before upgrading to Vista is the core specification of your PC: the processor, RAM and graphics card. While the Upgrade Advisor tells you if your computer meets the minimum specifications of Vista, it doesn't tell you the ideal specification.

A 1GHz processor is the minimum recommended, but a 2GHz processor is a much better choice, while any dual-core processor is ideal and will ensure that you get the best performance. Similarly, 512MB of RAM is the minimum recommended, but we've found that PCs with this amount of memory run Vista quite slowly. For that reason, we would suggest that you upgrade to at least 1GB of memory, although 2GB is even better.

This doesn't have to be expensive. Corsair's 2GB TWIN2x2048-6400 DDR2 memory kit, which won a Best Buy award in *Shopper* 239, costs just £49 inc VAT from www.scan.co.uk. Bear in mind, though, that the 32-bit version of Windows supports only 4GB of RAM, and even then it can't use all of it, as some of the memory address space is used for peripherals.

For the first time in Windows' history, you'll also need a decent graphics card. For Windows Home Basic, you need a DirectX 9-compatible card with 32MB of RAM. For the Home Premium, Business and Ultimate editions, you need 128MB of graphics memory, a Windows Display Driver Model (WDDM) driver, Pixel

INTRODUCTION

When Windows Vista was first released in January 2007, driver support was poor, and anyone running anything but the latest hardware couldn't get all of their peripherals working. A year on, the situation has improved, but there are still plenty of pitfalls to avoid if you want to make the upgrade on your existing PC, rather than buying a new Vista model.

In this month's *Advanced Projects*, we'll talk you through everything that you need to know.

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Are you on the list? Checking hardware and software

Microsoft maintains a growing and searchable database of Vista-compatible software, devices and system components called the Vista Hardware Compatibility List, which you can access at www.microsoft.com/whdc/hcl. You'll need to access this page with Internet Explorer 6, because Firefox is not supported.

There are two types of Vista compatibility. First, there are devices and systems that have been thoroughly tested and are certified as providing "the best experience with software, photos, music, videos and communications" under Windows Vista. Second, there are devices and systems that meet Microsoft's general standards of compatibility, reliability and security, and are known to work with all Vista PCs.

You can select one of these classes, whether you have a 32- or 64-bit system, and a hardware component type, to see the relevant list of compatible hardware. Alternatively, you can simply select a hardware category from the list on the left



▲ Microsoft's online Windows Hardware Compatibility List is great if you need to find Vista-compatible hardware, but don't try to view it with Firefox

of the database webpage. If your hardware is in the database, it'll work in Vista. If not, you can still upgrade and try running with the old Windows XP drivers instead, providing they are signed.



▲ Download the free Upgrade Advisor to test your XP hardware and software environments for Vista compatibility issues before you upgrade

Shader 2.0 in hardware and support for 32-bit graphics. If you cannot meet these requirements, Windows defaults back to the plain Windows Vista Basic interface rather than the new, snazzy, translucent Aero interface.

If you're not sure which graphics card you should get, check the manufacturer's websites for compatibility. ATI's list can be found at <http://tinyurl.com/Zzj3hd>, and Nvidia's at <http://tinyurl.com/hgjin>.

The Microsoft Hardware Compatibility List database has 22 pages of makes and models that are compatible. See 'Are you on the list?' (below left) for more details.

WORK IT OUT

Once you've done the relatively easy job of getting your PC's specification ready for Vista, you are ready to find out if your hardware will work, and this is where things can get tricky. There are several things to watch out for.

Windows Vista comes in 64-bit and 32-bit versions. The 64-bit versions are designed for 64-bit processors, such as the Athlon 64 and newer Intel processors. Its main advantage is that it can handle more memory. The 32-bit version will run on the same range of processors as Windows XP did, and it will also run on all 64-bit processors.

If you've got a 64-bit processor, it might seem like a good idea to go the whole hog and install the 64-bit edition of Windows Vista while you're making the upgrade. We'd recommend against this, though. The main reason is that different drivers have to be written for your hardware for the 64-bit and 32-bit versions of Windows. While the 32-bit version currently has a high level of support, the 64-bit version has fewer drivers.

In addition, 32-bit software should run properly under 64-bit Windows, but this cannot be guaranteed, and we've run into problems trying to get our 2D benchmarks working on 64-bit Windows. Because there is no performance difference between the two versions, you should make life easy for yourself and upgrade to the 32-bit version of Windows Vista.

Next, you need to find out if your existing peripherals and software will work in Vista. Check the list generated by Microsoft's Upgrade Advisor. Anything that was flagged up with an update or Vista drivers available will work fine. You should head to the relevant manufacturer's website and download the updates and drivers

now, and save them to a CD or USB flash drive so that they will be ready when Windows needs them.

If you have peripherals and software flagged up with potential compatibility problems, there are several things you should try. First, visit the manufacturer's website and look for updates in the support sections. For software, you're looking for a Vista update, or information that it will run properly. Depending on the age of your software, you may find there's no such update available and that your product is no longer supported. In these cases, your software may work anyway, but it's more likely that you'll need to buy the latest version.

For hardware, you're looking for a Windows Vista driver. If you find one, you'll know that your peripherals will work properly. If you can't see one, don't give up yet. Most devices will work in Vista with signed Windows XP drivers, while others can be forced into working with a couple of tricks. Common hardware, including mice, keyboards and USB flash drives, should work fine with Windows' built-in drivers. The general rule is that if Windows XP didn't request drivers then Vista won't either. However, if your hardware has a specific function, such as multimedia controls on a keyboard, you'll need Vista drivers to use them.

If you find that your hardware doesn't have support for Vista now and the manufacturer's website doesn't mention that support is on the way, you'll probably need to buy a newer model. The only way to know for sure if it will work in Vista is to install Vista and try your luck.

DECISIONS, DECISIONS

If the peripheral that doesn't have Vista drivers is vitally important to your business, such as a particular scanner, then we don't recommend upgrading your current PC. There are a few things you could try instead, however.

First, a dual-boot computer with Windows XP and Vista on it will at least let you switch back to XP when you need to use specific hardware and software. Even better, you could try using a virtual computer. In *Computer Workshop*, Shopper 239, we explained how to use Microsoft's free Virtual PC to run multiple operating systems at once. Using this software, you can run all your Windows XP software from inside Vista. You'll need a valid operating system licence for both Windows XP and Vista, though.

Finally, if your computer is really old and needs lots of hardware and software to be updated, why not leave it and buy a new PC when you're ready? This will probably cause fewer problems in the long run.

HARDWARE

If you're determined to make the upgrade, bear in mind that the process of getting your hardware to work will differ according to category. Here we examine each in turn.

• PRINTERS AND SCANNERS

Printers and scanners that have only signed Windows XP drivers should install properly in Windows Vista. If your device installed in Windows XP without bringing up a warning sign to say the driver wasn't signed, it should install in Vista without problems. If the drivers weren't signed, however, Vista won't accept them.

If that is the case, all is not lost, as there are other ways you can get your hardware working. Check your manufacturer's support forum to see if anyone else has managed a workaround, such as using a different driver. You'll often find you can run a printer using a driver for a model in the same range.

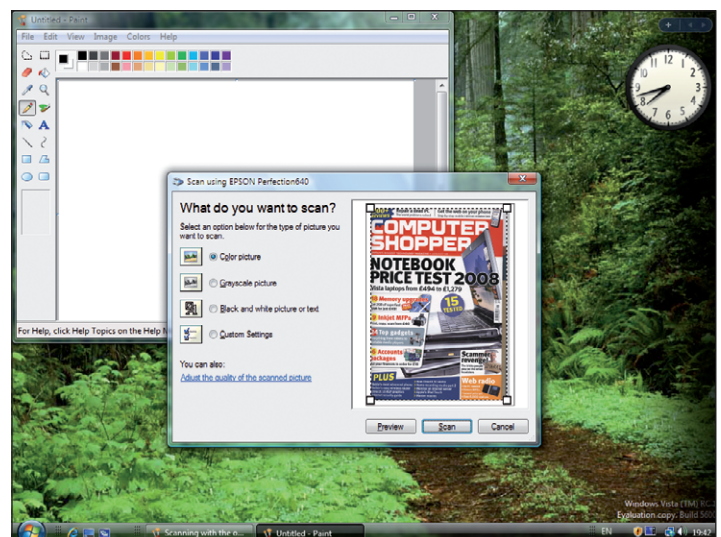
Support for scanners under Vista is variable, although you should always be able to download compatible TWAIN drivers, so you can at least perform basic scanning. There are some quirks to this method, though. We tested with an old Epson Perfection 640U scanner, which Vista correctly identified but couldn't find any drivers for. Epson's website had only a generic TWAIN driver for download. While this installed without hitch, Vista refused to detect out scanner. Fortunately, when we stuck in the original driver CD we got our scanner working, despite receiving several warnings that it wouldn't work.

Scanner support is improving, but some all-in-one devices incorporating both printer and scanner functions might give you only basic functionality for the time being. Advanced features such as photocopying might not be available, at least not until a dedicated Vista driver becomes available. If these features are really important to you, you should consider buying a new model.

• CAMERAS AND WEBCAMS

Unless it's an obscure make or model, your digital camera should work with Vista by default. ➡

► Vista finally recognised an Epson Perfection 640U scanner using its old XP driver, after the Vista version of its TWAIN driver had failed to do so



Even if you can't access your camera directly, you can move images off your camera by using a memory card reader. Most are compatible with Windows Vista, but if you've got one that doesn't work then a 17-in-1 reader with support for all major memory cards costs around £15.

In situations where your camera has only internal memory, or relies on a combination of a special serial cable and software to transfer images, the chances are you'll not be able to use it under Vista at all. Our ancient Fuji MX-1500 falls into the latter category, having only Windows 98 software. All is not lost, however. If you have access to hardware running a version of Windows that's compatible with your camera's hardware and software combination, you could extract your pictures and either share them on a network or transfer them to a USB flash disk.

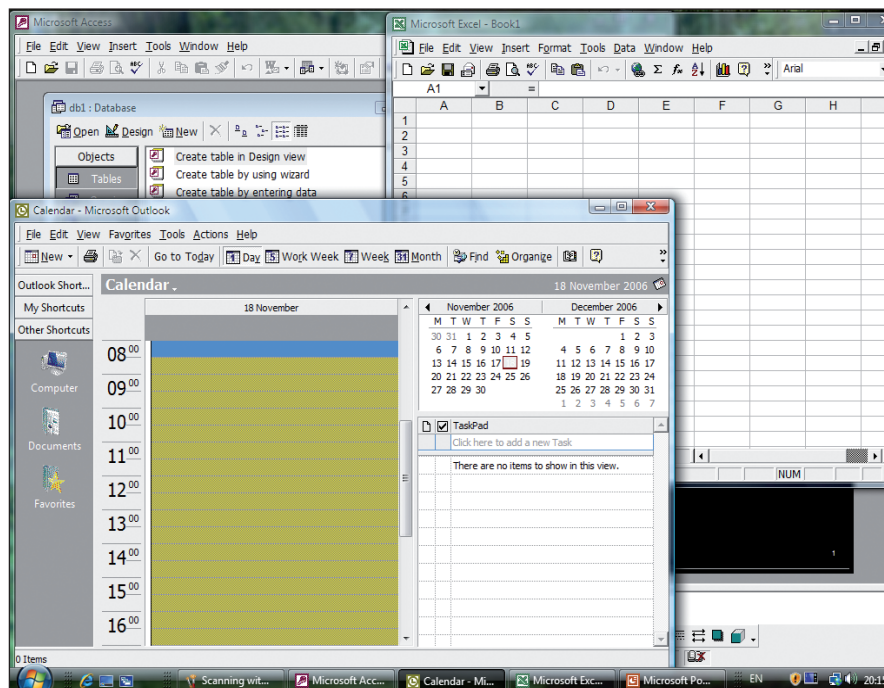
When it launched, Vista had some bad press over its support for webcams. That's changing fast, with manufacturers working hard to make their products compatible and gain the all-important Certified for Windows Vista label on boxes. Again, signed Windows XP drivers are assumed to work with existing hardware, but if there's a genuine Vista driver available it's best to install this instead.

• SOUND CARDS

The way that Windows handles sound cards has been drastically altered in Vista. It uses a new sound architecture called Universal Audio Architecture, abandoning support for DirectSound. Most onboard sound chips should not be affected by this change, but we have run into a few that are. The biggest problems will be encountered by those people with dedicated cards that use DirectSound.

If you're into music making and your software requires a sound card that uses DirectSound to produce multi-channel effects, you'll have to stick with Windows XP for the time being, badger the software's writers for a Vista version or consider switching music creation software. Mainstream sound card manufacturers such as Creative are rolling out dedicated Vista drivers across much of their product range. Furthermore, Vista also supports the X-Fi Xmod USB Audio Interface standard without any extra software.

You should check with your manufacturer for Vista drivers before upgrading. If they are not available, perform a web search to see if anyone has had a problem with your specific make and model of card, and whether they



▲ Despite Microsoft releasing Office 2007, Windows Vista happily runs older versions without any trouble. This, for instance, is the ancient Office 2000

managed to fix it. Finally, you can take your chances and upgrade anyway, and use the Windows XP driver if it's signed.

• NETWORKING

During installation, Vista can sometimes fail to recognise certain network cards using its generic drivers. In our experience generic, unbranded cards are the worst for causing this problem. However, we've experienced a curious situation where a clean Vista Ultimate installation failed to install drivers for a generic Realtek-compatible card, but a subsequent reinstallation of the operating system recognised it without any issue. This shouldn't be a problem with branded cards, which are generally well supported.

Wireless networking is also well supported by Vista. This is because the operating system carries excellent support for the widely used Broadcom wireless chipset as standard. If your wireless network card contains this chipset, you should have no problems.

Broadband routers and modems that connect directly to an Ethernet network card should also be OK. This is because routers and modems of this type don't usually require you to install any

extra driver software. You're far more likely to run into major problems if you use a USB ADSL modem. If you have concerns about support, contact your ISP and modem manufacturer before attempting to migrate to Vista. If there's no Vista support then you still have a couple of options.

You could consider installing Vista on new hardware and migrating your data while keeping your existing Windows XP machine as the access point to your broadband line, and simultaneously beefing up its security measures. A second option is to install a standalone Ethernet modem or dedicated internet router (see our Labs round-up on page 88), removing drivers from the equation altogether.

• GADGETS AND GIZMOS

If your Windows smartphone, PDA or mobile phone uses ActiveSync to synchronise with Windows XP, it will continue to work under Vista without any problems using the new Windows Mobile Device Center. Nokia and Sony Ericsson are also both releasing upgraded versions of their PC connectivity software for both 32- and 64-bit Vista. If you only use Bluetooth to connect to your mobile devices, you should have no worries, because Vista has excellent Bluetooth support.

Vista also contains drivers for Creative Labs' MP3 hardware as standard, but, as usual, you will need to go back to the manufacturer to see if other hardware is supported and whether there's a Vista driver available. Apple now provides dedicated Vista support for its iPod range, but other music players that relied on unsigned driver software for connectivity under Windows XP will struggle under Vista.

One notable problem that the iPod had under Vista was data corruption when using the Safely Remove Hardware feature. That has now been fixed. However, before you attempt to connect other MP3 players and risk losing their contents, it's best to check that the same thing hasn't been reported as a problem with your player.

Wizard of OS The Program Compatibility Wizard

Your Windows XP applications should run without any problems under Vista, but what if you upgrade and some very old software refuses to run?

Luckily, Microsoft bundles something called the Program Compatibility Wizard with Vista, which may be able to help. It enables you to run the offending program in an environment that simulates an older version of Windows.

To access the wizard, click on the Start button and select Control Panel, then select Programs category and finally select Use an older program with this version of Windows. In the wizard, select the program that refuses

to run, either by finding it manually or, if it's installed, from the list of known programs. Pressing the Next button will allow you to select the Windows version under which it last ran happily.

On subsequent pages of the wizard, you will find options for disabling various Vista elements that might also cause it problems. If your program needs special access to protected resources, you can also tell Vista to run it in the privileged administrator mode. The wizard then launches the program for you. If it runs, fine, but if not you can hit the Back button and try some other compatibility settings.

SOFTWARE

As a general rule, Windows Vista will run any 32-bit Windows software designed to run under Windows XP, but there are exceptions. In general, you should check your software manufacturer's website to see if there are Vista updates available. If there aren't, there are some things that you can try.

First, you should try Windows' Program Compatibility Wizard (see 'The Wizard of OS', below left). If this doesn't work, search the support forums to see if there's a workaround. Here we present specific advice for the most common software, and how to make sure it's Vista compatible.

• OFFICE

We've been running Microsoft Office 2000 Professional Edition on Vista and everything seems to work perfectly, including that annoying paperclip. However, on inserting disc 1 to begin the installation, the autorun system warned that an unidentified program was trying to access our computer. After a moment of panic, we realised this was due to the Microsoft Office setup program being so old. We were unable to try any versions older than this. If you find older versions of Office don't run, it's probably time to upgrade.

OpenOffice works correctly in Windows Vista, too, although it's worth upgrading to the latest version, which has been written specifically to work with the new operating system.

• OPEN SOURCE

Microsoft hasn't included any technology to prevent open-source software working, so you shouldn't have any problems here. For example, Firefox 2 runs perfectly, as do all its extensions. These work because they're written in JavaScript, so they don't have to access hardware directly or perform any system calls that Windows Vista doesn't like.

• GRAPHICS

If you're in the middle of drawing a complex picture or processing a batch of digital photographs, the last thing you need is for old

Windows XP software to crash suddenly due to some incompatibility with Vista. Luckily, it seems that mainstream graphics programs are compatible and well behaved, and several manufacturers have even released updates to their programs specially designed for Vista users.

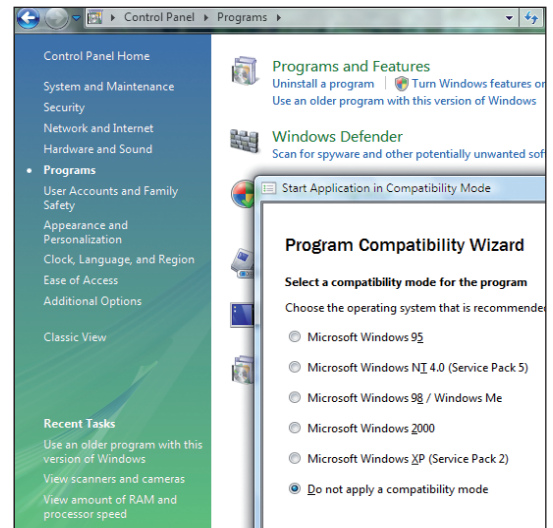
Corel, for instance, has made updates available to products including Graphics Suite X3, Painter X, Painter Essentials, Paint Shop Pro XI and Snapfire Plus. You can download them all from www.corel.com/vista. They're all either simple patches or service packs. Corel says that they are designed to make the relevant packages "Vista compliant".

After some confusing claims about not upgrading its products, Adobe has announced that most of its existing product line will run on Windows Vista without updates. If you run the 32-bit version of Photoshop Elements 5.0, there's a 32MB upgrade available for Vista users to take you to version 5.0.2. However, to take advantage of Vista support for programs such as Photoshop, InDesign and Dreamweaver, you'll have to buy Adobe's new Creative Suite 3 versions.

• SECURITY

Vista's beefed-up security measures were designed to give hackers and automated attack software a hard time. Over the first year of widespread use, it emerged that there are vulnerabilities in Vista, just as there are in all operating systems. Because of this, you'll still need to harden the installation before letting it anywhere near the internet. This is because the time between deploying a default unprotected system and it being compromised or infected with malware can be frighteningly quick.

Vista's built-in firewall is an improved version of Windows XP's firewall, installed as part of Service Pack 1. It now filters packets both leaving



▲ If you have problems with older applications, try tricking them into believing they are running on an old version of Windows using the Program Compatibility Wizard

and entering your computer. You also have the added advantage of the Windows Defender anti-spyware package. While these tools are improvements to Windows XP's tools, they cannot match dedicated third-party products and there's still no anti-virus protection.

Some security companies, such as Symantec, have special instructions for those who are upgrading to Vista. It's always a good idea to follow these to ensure that you have the best level of protection. Many free programs, while they will keep you perfectly safe online, don't have such explicit help.

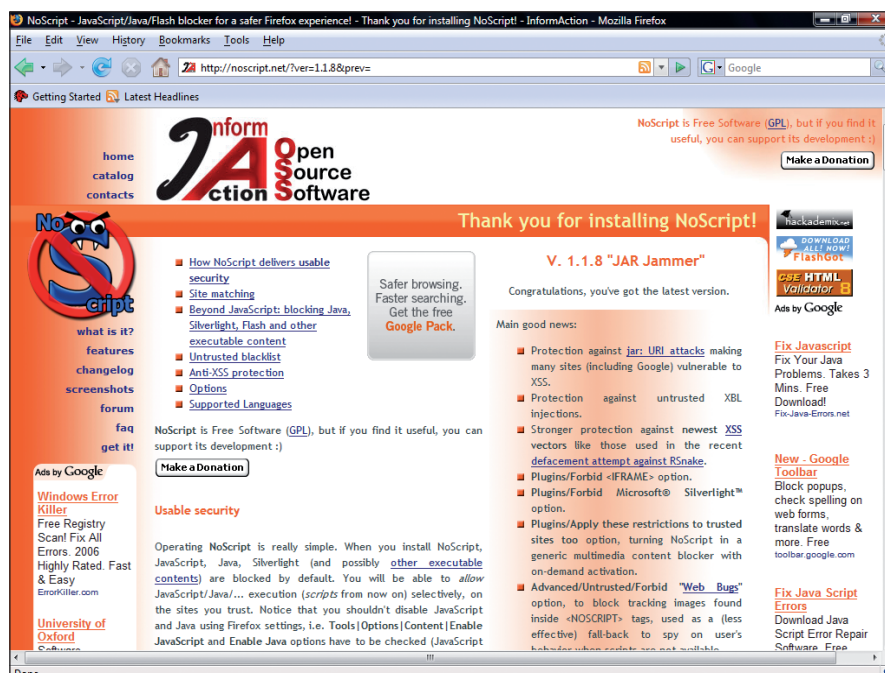
As a general rule here, you should try to download everything you need first and save it to CD. By doing this, you can perform the upgrade and apply your favourite third-party security software offline without the risk of exposing the computer to the internet.

Always check the Vista compatibility of the security products you intend to install, or else you may be unwittingly opening a backdoor to hackers. If there's a Vista version, you need to download or upgrade to this rather than keep running the Windows XP version. If your choice of products allows it, you should also download the latest databases, and install these offline too. Only when you are fully protected should you venture online.

• GAMES

Vista is very strict about access to its hardware and many games will refuse to run (save for in administrator mode) or run with reduced sound or graphical functionality. To overcome this, try running games in administrator mode using Vista's Program Compatibility Wizard.

Even very popular games might struggle on Vista if either your hardware or its drivers aren't fully supported. Learn from the experiences of others by searching online games software support forums for any problems that have been encountered by others. Call of Duty 2, for example, originally wouldn't run properly under Windows Vista using Nvidia graphics hardware with anti-aliasing turned on. This has since been rectified with newer Nvidia drivers, but it highlights the problems that can occur with older games. Brand new games written with Vista in mind should have no problems.



▲ Open-source programs such as Firefox run perfectly under Vista, as do their extensions